

providing a mixture of at least one infective protein antigen with a proteosome preparation in the presence of a detergent;

B1 removing detergent from said mixture by diafiltration or ultrafiltration to obtain a proteosome-antigen composition; and

formulating said composition into a vaccine

wherein the ratio of proteosomes to antigen in said mixture is greater than 1:1.

31. A composition prepared as described in claim 1 which is filtered with a 0.2 or 0.8  $\mu$ m filter.

B2 32. A composition prepared as described in claim 7 which is filtered with a 0.2 or 0.8  $\mu$ m filter.

33. A composition prepared as described in claim 14 which is filtered with a 0.2 or 0.8  $\mu$ m filter.

34. A composition prepared as described in claim 19 which is filtered with a 0.2 or 0.8  $\mu$ m filter.

Please add the following new claims:

35. A method to prepare a vaccine effective against allergy which method comprises:  
providing a mixture of at least one allergy protein antigen with a proteosome preparation in the presence of detergent;

removing detergent from said mixture by diafiltration or ultrafiltration to obtain a proteosome-antigen composition; and

formulating said composition into a vaccine.

36. The method of claim 35, wherein the allergy is acquired via a mucosal or ingestive route.

37. The method of claim 35, wherein the protein antigen is a cell surface protein antigen or an internal protein antigen.

38. The method of claim 35, wherein the protein antigen is a recombinant antigen.

39. The method of claim 35, wherein the ratio of proteosomes to protein antigen in said mixture is greater than 1:1.

40. A method to prepare a vaccine effective against cancer which method comprises: providing a mixture of at least one cancer antigen with a proteosome preparation in the presence of detergent;

removing detergent from said mixture by diafiltration or ultrafiltration to obtain a proteosome-antigen composition; and

formulating said composition into a vaccine.

41. The method of claim 40, wherein the antigen is a cell surface protein antigen or an internal protein antigen.

42. The method of claim 40, wherein the antigen is a viral antigen.

43. The method of claim 40, wherein the antigen is a recombinant antigen.

44. The method of claim 40, wherein the ratio of proteosomes to antigen in said mixture is greater than 1:1.

45. A method to prepare a vaccine effective against a biologic threat agent which method comprises:

providing a mixture of at least one biologic threat agent antigen with a proteosome preparation in the presence of detergent;

removing detergent from said mixture by diafiltration or ultrafiltration to obtain a proteosome-antigen composition; and

formulating said composition into a vaccine.

46. The method of claim 45 wherein the antigen is a toxin.

47. A method to prepare a multivalent vaccine effective against an allergy, cancer, or biologic threat agent which method comprises:

providing a mixture of at least two allergy, cancer, or biologic threat protein antigens with a proteosome preparation in the presence of a detergent;

removing detergent from said mixture by diafiltration or ultrafiltration to obtain a proteosome-multivalent antigen composition, and

formulating said composition into a vaccine.

48. A method to prepare a vaccine effective against allergy which method comprises mixing at least two compositions, each containing at least one allergy protein antigen, said compositions prepared by the method of claim 35 and

formulating said mixture into a vaccine.

49. A method to prepare a vaccine effective against cancer or a biologic threat agent which method comprises mixing at least two compositions, each containing at least one cancer or

biologic threat protein antigen, said compositions prepared by the method of claim 40 or claim 45 and

formulating said mixture into a vaccine.

50. A vaccine prepared by the method of any one of claims 35-48.

51. A composition prepared by the method of claim 35 which is filtered with a 0.2 or 0.8  $\mu\text{m}$  filter prior to formulation.

52. A composition prepared by the method of claim 40 which is filtered with a 0.2 or 0.8  $\mu\text{m}$  filter.

53. A composition prepared by the method of claim 45 which is filtered with a 0.2 or 0.8  $\mu\text{m}$  filter.

54. A composition prepared by the method of claim 47 which is filtered with a 0.2 or 0.8  $\mu\text{m}$  filter.

55. A composition prepared by the method of claim 48 which is filtered with a 0.2 or 0.8  $\mu\text{m}$  filter.

56. A method to prepare a vaccine effective in shifting an immune response against infection, cancer, allergy, or biologic threat agent from a Type 2 response toward a Type 1 response, which method comprises:

providing a mixture of at least one infective, cancer, allergy or biologic threat protein antigen with a proteosome preparation in the presence of detergent;

removing detergent from said mixture by diafiltration or ultrafiltration to obtain a proteosome-antigen composition; and  
formulating said composition into a vaccine.

57. A method for preventing or treating infection, allergy, cancer, or biologic threat agent in an animal comprising administering to the animal in need thereof a composition prepared by the method of any one of claims 1, 7, 14, 19, 35, 40, 45-48, or 56.